



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,366	11/12/2003	Hideaki Tsuda	1508.68727	6792

7590 01/17/2007  
Patrick G. Burns, Esq.  
GREER, BURNS & CRAIN, LTD.  
Suite 2500  
300 South Wacker Dr.  
Chicago, IL 60606

EXAMINER
----------

NGUYEN, THANH NHAN P

ART UNIT	PAPER NUMBER
----------	--------------

2871

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/17/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/706,366

Applicant(s)

TSUDA

Examiner

(Nancy) Thanh-Nhan P. Nguyen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7,8,10-12 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7,8,10-12 and 17-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 7, 10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al (US 6,621,550) in view of Manabe et al (JP 11-095221), Yamada et al (US 5,729,318) and Sasaki (US 2004/0027529).**

**Regarding claims 7 and 10,** Arakawa et al discloses a liquid crystal display panel, wherein the liquid crystal shows a nematic phase at an ordinary temperature and a dielectric anisotropy of the liquid crystal is negative, [see col. 2, lines 15-19].

Arakawa et al lacks disclosure of a liquid crystal display panel in which a liquid crystal into which an alignment control agent is added is filled between a pair of substrates to form a liquid crystal layer and an alignment regulate layer is formed on liquid crystal side surfaces of the pair of substrates respectively by causing the alignment control agent to adhere thereon, wherein the alignment regulate layer has a regulation power for aligning the molecules of the liquid crystal vertically to the substrate surface, and wherein a thickness of the alignment regulate layer is less than a thickness of the liquid crystal layer.

Manabe et al discloses a liquid crystal display panel in which a liquid crystal (7) into which an alignment control agent (6) is added is filled between a pair of substrates

Art Unit: 2871

(1 and 5), [fig. 1c], to form a liquid crystal layer (7) and an alignment regulate layer (6), [fig. 1d], is formed on liquid crystal side surfaces of the pair of substrates respectively by causing the alignment control agent to adhere thereon the substrate (to optical react), wherein the alignment regulate layer has a regulation power for aligning the molecules of the liquid crystal vertically [fig. 2a] to the substrate surface, and wherein a thickness of the alignment regulate layer is less than a thickness of the liquid crystal layer, [1d], for the benefit of decreasing the number of production stages and improving productivity yield, [Abstract]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to form alignment film by added alignment control agent to liquid crystal by causing the alignment control agent to adhere on the substrate (to optical react), (wherein the alignment regulate layer has a regulation power for aligning the molecules of the liquid crystal vertically to the substrate surface, and wherein a thickness of the alignment regulate layer is less than a thickness of the liquid crystal layer), for the benefit of decreasing the number of production stages and improving productivity yield.

Arakawa et al further lacks disclosure of wherein the liquid crystal contains a liquid crystal composition having a fluoro group.

Yamada et al discloses the liquid crystal contains a liquid crystal composition having a fluoro group for the benefit of having great characteristic such as excellent in chemical reaction resistance for the photopolymerization effect, [see col. 29, lines 45-50]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the liquid crystal contains a liquid crystal

Art Unit: 2871

composition having a fluoro group for the benefit of having great characteristic such as excellent in chemical reaction resistance for the photopolymerization effect.

Arakawa et al further lacks disclosure of column-like spacers for maintaining an interval between the pair of substrates constant are arranged in areas between four subpixels and between subpixels of at least two colors, and wherein the column-like spacers formed at a rate of one spacer to plural pixels.

Sasaki discloses (fig. 15) column-like spacers for maintaining an interval between the pair of substrates constant are arranged in areas between four subpixels and between subpixels of at least two colors, and wherein the column-like spacers formed at a rate of one spacer to plural pixels, for the benefit of being able to reduce concentration of a load on the spacers, [par. 0029]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have column-like spacers for maintaining an interval between the pair of substrates constant are arranged in areas between four subpixels and between subpixels of at least two colors, and wherein the column-like spacers formed at a rate of one spacer to plural pixels, for the benefit of being able to reduce concentration of a load on the spacers.

**Regarding claim 17,** Arakawa et al discloses a nematic liquid crystal composition having a value of dielectric anisotropy  $\Delta\epsilon$  within the range of -2 to -10, [col. 2, lines 15-19]. It has been judicially determined that overlapping ranges are at least obvious, [see MPEP 2144.05]. The range of the dielectric anisotropy of the liquid crystal is  $\Delta\epsilon < -3$  would have been obvious to one of ordinary skill in the art. Further, when the

Art Unit: 2871

dielectric anisotropy is increased in the negative direction, driving at a voltage of as low as 5V or less becomes possible, [see col. 8, lines 3-6].

**Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al in view of Manabe et al, Yamada et al, Sasaki and further in view of Nam et al (US 2002/0039160).**

**Regarding claim 18,** Arakawa et al lacks disclosure of acrylate monomer is used as the alignment control agent.

Nam et al discloses acrylate monomer is used as the alignment control agent for the benefit of increasing the cross linking index of the alignment film, [see par. 0048, and 0050]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use acrylate monomer as the alignment control agent for the benefit of increasing the cross linking index of the alignment film.

**Claims 8, 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al in view of Manabe et al, Yamada et al, Sasaki, and further in view of Sawasaki et al (US 2001/0026347).**

**Regarding claim 8,** Arakawa lacks disclosure of the column-like spacers are formed by exposing and developing a photoresist.

Sawasaki et al discloses the spacers (25a) are formed by exposing and developing a photoresist (25) for the benefit of being able to have a uniform height and being possible to be arranged at predetermined positions, thus maintaining the cell gap constant over the entire display region and therefore improving the display quality, [see par. 0113]. Therefore, at the time the invention was made, it would have been obvious

Art Unit: 2871

to a person of ordinary skill in the art to have the column-like spacers are formed by exposing and developing a photoresist for the benefit of being able to have a uniform height and being possible to be arranged at predetermined positions, thus maintaining the cell gap constant over the entire display region and therefore improving the display quality.

**Claims 11 and 19** are met the discussion regarding claim 8 rejection above.

**Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa et al in view of Manabe et al, Yamada et al, Sasaki, Sawasaki et al, and further in view of Nam et al (US 2002/0039160).**

**Regarding claim 12**, Arakawa et al lacks disclosure of acrylate monomer is used as the alignment control agent.

Nam et al discloses acrylate monomer is used as the alignment control agent for the benefit of increasing the cross linking index of the alignment film, [see par. 0048, and 0050]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use acrylate monomer as the alignment control agent for the benefit of increasing the cross linking index of the alignment film.

### ***Response to Arguments***

Applicant's arguments with respect to claims 7, 8, 10-12 and 17-19 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

Art Unit: 2871

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should



Art Unit: 2871

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen  
Examiner

Art Unit 2871

TN



David Nelms  
Supervisory Patent Examiner  
Technology Center 2800